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DEPARTMENT OF ENERGY

10 CFR Part 430

[EERE-2022-BT-STD-0018]

RIN 1904-AF37

Energy Conservation Program: Energy Conservation Standards for Direct Heating Equipment

AGENCY: Office of Energy Efficiency and Renewable Energy, Department of Energy.

ACTION: Request for information.

SUMMARY: The U.S. Department of Energy ("DOE") is initiating an effort to evaluate whether to establish energy conservation standards for a category of direct heating equipment ("DHE"), specifically consumer hearth heaters. This request for information ("RFI") solicits information from the public to help DOE determine whether potential standards for consumer hearth heaters would result in significant energy savings and whether such standards would be technologically feasible and economically justified. DOE welcomes written comments from the public on any subject within the scope of this document (including topics not specifically raised), as well as the submission of data and other relevant information.

DATES: Written comments and information are requested and will be accepted on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

ADDRESSES: Interested persons are encouraged to submit comments using the Federal eRulemaking Portal at *www.regulations.gov*, under docket number EERE-2022-BT-STD-0018. Follow the instructions for submitting comments. Alternatively, interested persons may submit comments, identified by docket number EERE–2022–BT–STD-0018 and/or RIN 1904-AF37, by any of the following methods:

(1) *Email*: *HearthHtrs2022STD0018@ee.doe.gov*. Include docket number EERE–2022–BT–STD-0018 and/or RIN 1904-AF37 in the subject line of the message.

(2) *Postal Mail:* Appliance and Equipment Standards Program, U.S. Department of Energy, Building Technologies Office, Mailstop EE-5B, 1000 Independence Avenue, SW., Washington, DC, 20585-0121. Telephone: (202) 287-1445. If possible, please submit all items on a compact disc ("CD"), in which case it is not necessary to include printed copies.

(3) *Hand Delivery/Courier:* Appliance and Equipment Standards Program, U.S. Department of Energy, Building Technologies Office, 950 L'Enfant Plaza, SW., 6th Floor, Washington, DC, 20024. Telephone: (202) 287-1445. If possible, please submit all items on a CD, in which case it is not necessary to include printed copies.

No telefacsimiles ("faxes") will be accepted. For detailed instructions on submitting comments and additional information on this process, see section III of this document.

Docket: The docket for this activity, which includes *Federal Register* notices, comments, and other supporting documents/materials, is available for review at *www.regulations.gov*. All documents in the docket are listed in the *www.regulations.gov* index. However, not all documents listed in the index may be publicly available, such as those containing information that is exempt from public disclosure.

The docket webpage can be found at *www.regulations.gov/docket/EERE-2022-BT-STD-0018*. The docket webpage contains instructions on how to access all documents, including public comments, in the docket. See section III for information on how to submit comments through *www.regulations.gov*.

FOR FURTHER INFORMATION CONTACT: Ms. Julia Hegarty, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies

Office, EE-5B, 1000 Independence Avenue, SW., Washington, DC, 20585-0121. Telephone: (240) 597-6737. E-mail: *ApplianceStandardsQuestions@ee.doe.gov*.

Mr. Eric Stas, U.S. Department of Energy, Office of the General Counsel, GC-33, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Telephone: (202) 586-5827. E-mail: *Eric.Stas@hq.doe.gov*.

For further information on how to submit a comment, or review other public comments and the docket, contact the Appliance and Equipment Standards Program staff at (202) 287-1445 or by e-mail: *ApplianceStandardsQuestions@ee.doe.gov*.

SUPPLEMENTARY INFORMATION:

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I. Introduction

A. Authority and Background

1. Authority

The Energy Policy and Conservation Act, as amended ("EPCA"),[1] Pub. L. 94-163 (42 U.S.C. 6291-6317, as codified) authorizes DOE to regulate the energy efficiency of a number of consumer products and certain industrial equipment. Title III, Part B[2] of EPCA established the Energy Conservation Program for Consumer Products Other Than Automobiles. (42 U.S.C. 6291-6309) These products include DHE, which as discussed in the following sections, includes consumer hearth heaters, the subject of this document. (42 U.S.C. 6292(a)(9))

The energy conservation program under EPCA consists essentially of four parts: (1) testing, (2) labeling, (3) Federal energy conservation standards, and (4) certification and enforcement procedures. Relevant provisions of EPCA specifically include definitions (42 U.S.C. 6291), test procedures (42 U.S.C. 6293), labeling provisions (42 U.S.C. 6294), energy conservation standards (42 U.S.C. 6295), and the authority to require information and reports from manufacturers (42 U.S.C. 6296).

Federal energy efficiency requirements for covered products established under EPCA generally supersede State laws and regulations concerning energy conservation testing, labeling, and standards. (42 U.S.C. 6297(a)–(c)) DOE may, however, grant waivers of Federal preemption in limited circumstances for particular State laws or regulations, in accordance with the procedures and other provisions of EPCA. (42 U.S.C. 6297(d))

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[1] All references to EPCA in this document refer to the statute as amended through the Energy Act of 2020, Pub. L. 116-260 (Dec. 27, 2020), which reflects the last statutory amendments that impact Parts A and A-1 of EPCA.

[2] For editorial reasons, upon codification in the U.S. Code, Part B was redesignated Part A.

DOE must follow specific statutory criteria for prescribing new or amended energy conservation standards for covered products, including DHE. Any new or amended standard for a covered product must be designed to achieve the maximum improvement in energy efficiency that the Secretary of Energy determines is technologically feasible and economically justified. (42 U.S.C. 6295(o)(2)(A) and 42 U.S.C. 6295(o)(3)(B)) Furthermore, DOE may not adopt any standard that would not result in the significant conservation of energy. (42 U.S.C. 6295(o)(3))

Moreover, DOE may not prescribe a standard: (1) for certain products, including direct heating equipment, if no test procedure has been established for the product, or (2) if DOE determines by rule that the standard is not technologically feasible or economically justified. (42 U.S.C. 6295(o)(3)(A)–(B)) In deciding whether a proposed standard is economically justified, DOE must determine whether the benefits of the standard exceed its burdens. (42 U.S.C. 6295(o)(2)(B)(i)) DOE must make this determination after receiving views and comments on the proposed standard, and by considering, to the greatest extent practicable, the following seven factors:

(1) The economic impact of the standard on the manufacturers and consumers of the products subject to the standard;

(2) The savings in operating costs throughout the estimated average life of the covered products in the type (or class) compared to any increase in the price, initial charges, or maintenance expenses for the covered products that are likely to result from the standard;

(3) The total projected amount of energy (or as applicable, water) savings likely to result directly from the standard;

(4) Any lessening of the utility or the performance of the products likely to result from the standard;

(5) The impact of any lessening of competition, as determined in writing by the

Attorney General, that is likely to result from the standard;

(6) The need for national energy and water conservation; and

(7) Other factors the Secretary of Energy considers relevant.

(42 U.S.C. 6295(o)(2)(B)(i)(I)–(VII))

Further, EPCA establishes a rebuttable presumption that a standard is economically justified if the Secretary finds that the additional cost to the consumer of purchasing a product complying with an energy conservation standard level will be less than three times the value of the energy savings during the first year that the consumer will receive as a result of the standard, as calculated under the applicable test procedure. (42 U.S.C. 6295(o)(2)(B)(iii))

EPCA also contains what is known as an "anti-backsliding" provision, which prevents the Secretary from prescribing any amended standard that either increases the maximum allowable energy use or decreases the minimum required energy efficiency of a covered product. (42 U.S.C. 6295(o)(1)) Also, the Secretary may not prescribe an amended or new standard if interested persons have established by a preponderance of the evidence that the standard is likely to result in the unavailability in the United States in any covered product type (or class) of performance characteristics (including reliability), features, sizes, capacities, and volumes that are substantially the same as those generally available in the United States. (42 U.S.C. 6295(o)(4))

Additionally, EPCA specifies requirements when promulgating an energy conservation standard for a covered product that has two or more subcategories that warrant separate product classes and energy conservation standards with a level of energy efficiency or energy use either higher or lower than that which would apply for such group of covered products which have the same function or intended use. DOE must specify a different standard level for a type or class of products that has the same function or intended use, if DOE determines that products within such group: (A) consume a

different kind of energy from that consumed by other covered products within such type (or class); or (B) have a capacity or other performance-related feature which other products within such type (or class) do not have and such feature justifies a higher or lower standard. (42 U.S.C. 6295(q)(1)) In determining whether capacity or another performance-related feature justifies a different standard for a group of products, DOE must consider such factors as the utility to the consumer of the feature and other factors DOE deems appropriate. *Id*. Any rule prescribing such a standard must include an explanation of the basis on which such higher or lower level was established. (42 U.S.C. 6295(q)(2))

Finally, pursuant to the amendments contained in the Energy Independence and Security Act of 2007 ("EISA 2007"), Pub. L. 110-140, any final rule for new or amended energy conservation standards promulgated after July 1, 2010, is required to address standby mode and off mode energy use. (42 U.S.C. 6295(gg)(3)) Specifically, when DOE adopts a standard for a covered product after that date, it must, if justified by the criteria for adoption of standards under EPCA (42 U.S.C. 6295(o)), incorporate standby mode and off mode energy use into a single standard, or, if that is not feasible, adopt a separate standard for such energy use for that product. (42 U.S.C. 6295(gg)(3)(A)–(B))

At present there is no test procedure or energy conservation standard for consumer hearth heaters.

2. Rulemaking History

The National Appliance Energy Conservation Act of 1987 ("NAECA"), Pub. L. 100-12, amended EPCA to include DHE in the list of covered products (42 U.S.C. 6292(a)(9)). NAECA also prescribed the initial energy conservation standards for DHE—limited to vented gas DHE only—which were based on annual fuel utilization energy ("AFUE"), and the statute established separate standards for "wall fan type,"

"wall gravity type," "floor," and "room" DHE and further divided these product classes by input capacity.[3] (42 U.S.C 6295(e)(3))

On April 16, 2010, DOE published a final rule in the *Federal Register,* which, in relevant part, promulgated definitions and energy conservation standards for certain DHE (*i.e.,* vented gas hearth products). 75 FR 20112 ("April 2010 Final Rule").[4] In the April 2010 Final Rule, DOE concluded that vented hearth products—which were described as including gas-fired products such as fireplaces, fireplace inserts, stoves, and log sets that typically include aesthetic features and that provide space heating—meet the definition of "vented home heating equipment" because they are designed to furnish warmed air to the living space of a residence. *Id.* at 75 FR 20128. In the April 2010 Final Rule, DOE also adopted a definition of "vented hearth heater" as a vented appliance which simulates a solid fuel fireplace and is designed to furnish warm air, with or without duct connections, to the space in which it is installed. *Id.* at 75 FR 20130, 20234. The circulation of heated room air may be by gravity or mechanical means. *Id.* A vented hearth heater may be freestanding, recessed, zero clearance, or a gas fireplace insert or stove. *Id.* Those heaters with a maximum input capacity less than or equal to 9,000 British thermal units per hour ("Btu/h"), as measured using DOE's test procedure for vented home heating equipment (10 CFR part 430, subpart B, appendix O), were considered purely decorative and were excluded from DOE's regulations. *Id*.

On November 18, 2011, DOE published in the *Federal Register* a final rule that amended the definition of vented hearth heater. 76 FR 71836 ("November 2011 Final Rule"). The November 2011 Final Rule established criteria to differentiate vented hearth heaters from purely decorative heaters based on safety standard certifications, labeling,

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[3] DOE defines "direct heating equipment" as vented home heating equipment and unvented home heating equipment. 10 CFR 430.2. For the purpose of the energy conservation standards, DOE further delineates vented home heating equipment as "gas wall fan type," "gas wall gravity type," "gas floor," and "gas room" and then further divides product classes by input capacity. 10 CFR 430.32(i).

[4] A correction to the April 2010 Final Rule was published in the *Federal Register* on April 27, 2010, to correct a date that is not relevant to this discussion. 75 FR 21981.

and prescriptive elements (*i.e.*, sold without a thermostat and without a standing pilot light). *Id.* at 76 FR 71859. The November 2011 Final Rule defined a vented hearth heater as a vented appliance which simulates a solid fuel fireplace and is designed to furnish warm air, with or without duct connections, to the space in which it is installed; the circulation of heated room air may be by gravity or mechanical means; a vented hearth heater may be freestanding, recessed, zero clearance, or a gas fireplace insert or stove; and the following products were not subject to the energy conservation standards for vented hearth heaters:

- Vented gas log sets and
- Vented gas hearth products that meet all of the following four criteria:
    - Certified to American National Standards Institute ("ANSI") Z21.50, Vented Decorative Gas Appliances, but not to ANSI Z21.88, Vented Gas Fireplace Heaters;
    - Sold without a thermostat and with a warranty provision expressly voiding all manufacturer warranties in the event the product is used with a thermostat;
    - Expressly and conspicuously identified on its rating plate and in all manufacturer's advertising and product literature as a "Decorative Product: Not for use as a Heating Appliance"; and
    - With respect to products sold after January 1, 2015, not equipped with a standing pilot light or other continuously-burning ignition source.

Id. at 76 FR 71859.

The Hearth, Patio & Barbecue Association ("HPBA") sued DOE in the United States Court of Appeals for the District of Columbia Circuit ("D.C. Circuit") to invalidate the April 2010 Final Rule (and subsequently extended to the November 2011 Final Rule) as those rules pertained to vented gas hearth products. *Petition for Review, Hearth, Patio*

& Barbecue Association v. *Department of Energy, et al.,* No. 10-1113 (D.C. Cir. filed May 27, 2010). On February 8, 2013, the D.C. Circuit issued its opinion in the HPBA case and ordered that the definition of "vented hearth heater" adopted by DOE be vacated, and remanded the matter to DOE to interpret the challenged provisions in accordance with the Court's opinion. *Hearth, Patio & Barbecue Association et al v. Department of Energy,* 706 F.3d 499 (D.C. Cir. 2013). The Court held that the phrase "vented hearth heater" did not encompass decorative fireplaces as that term is traditionally understood, vacated the entire statutory definition of "vented hearth heater," and remanded for DOE to interpret the challenged provisions consistent with the court's opinion. *Id.* at 509. On July 29, 2014, DOE published a final rule in the *Federal Register* amending the relevant portions of its regulations to reflect the Court's decision to vacate the regulatory definition of "vented hearth heater" (and by implication, the associated energy conservation standards). 79 FR 43927.

On December 31, 2013, DOE published a notice of proposed determination of coverage ("NOPD") for hearth products in the *Federal Register*. 78 FR 79638 ("December 2013 NOPD"). DOE proposed to define "hearth product" as a gas-fired appliance that simulates a solid-fueled fireplace or presents a flame pattern (for aesthetics or other purpose) and that may provide space heating directly to the space in which it is installed. DOE also provided examples of products meeting this definition, including vented decorative hearth products, vented heater hearth products, vented gas logs, gas stoves, outdoor hearth products, and ventless hearth products. *Id.* at 78 FR 79640. Subsequently, on February 9, 2015, DOE published a notice of proposed rulemaking ("NOPR") proposing energy conservation standards for hearth products in the *Federal Register*. 80 FR 7082 ("February 2015 NOPR). On March 31, 2017, DOE withdrew the

December 2013 NOPD[5] in the bi-annual publication of the Regulatory Agenda for the reasons explained subsequently.[6] 82 FR 40270, 40274 (August 24, 2017).

On February 7, 2022, DOE published in the *Federal Register* a NOPD for the coverage of miscellaneous gas products. 87 FR 6786 ("February 2022 NOPD"). In that NOPD, DOE stated that it had been overly broad in discussion of the Court's holding in the context of vented hearth heaters in the withdrawn December 2013 NOPD. Although there are not currently energy conservation standards for vented hearth heaters in DOE's regulations at 10 CFR 430.32(i), DOE explained that these products are appropriately covered as vented home heating equipment (a category of DHE) and that such products were not part of the February 2022 NOPD. *Id*. at 87 FR 6788. As noted in section I.A.1 of this document, EPCA authorizes DOE to regulate the energy efficiency of DHE, which includes vented and unvented home heating equipment (including vented and unvented hearth heaters). (*See* 42 U.S.C. 6292(a)(9))

Energy conservation standards for other categories of DHE were most recently reviewed on November 23, 2021, when DOE published a final determination in the *Federal Register* which found that the energy conservation standards for direct heating equipment do not need to be amended ("November 2021 Final Determination"). 86 FR 66403. However, the November 2021 Final Determination did not consider hearth heaters, and DOE stated in that notice that to the extent the Department decides to consider energy conservation standards for hearth heaters, it would do so in a separate rulemaking. *Id.* at 86 FR 66409.

DOE is publishing this RFI to collect data and information about consumer hearth heaters to inform its consideration of energy conservation standards for such products, consistent with its obligations under EPCA.

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[5] Withdrawal of the December 2013 NOPD also resulted in the withdrawal of the February 2015 NOPR.
[6] Past publications of DOE's Regulatory Agenda can be found at: *resources.regulations.gov/public/component/main.*

B. Rulemaking Process

DOE must follow specific statutory criteria for prescribing new or amended standards for covered products. As noted, EPCA requires that any new or amended energy conservation standard prescribed by the Secretary of Energy ("Secretary") be designed to achieve the maximum improvement in energy efficiency (or water efficiency for certain products specified by EPCA) that is technologically feasible and economically justified. (42 U.S.C. 6295(o)(2)(A)) Furthermore, DOE may not adopt any standard that would not result in the significant conservation of energy. (42 U.S.C. 6295(o)(3)(B))

Particularly in light of the climate crisis, the significance of energy savings offered by a new or amended energy conservation standard cannot be determined without knowledge of the specific circumstances surrounding a given rulemaking.[7] For example, the United States has now rejoined the Paris Agreement on February 19, 2021. As part of that agreement, the United States has committed to reducing greenhouse gas ("GHG") emissions in order to limit the rise in mean global temperature.[8] As such, energy savings that reduce GHG emissions have taken on greater importance. Additionally, some covered products and equipment have most of their energy consumption occur during periods of peak energy demand. The impacts of these products on the energy infrastructure can be more pronounced than products with relatively constant demand. In evaluating the significance of energy savings, DOE considers differences in primary energy and FFC effects for different covered products and equipment when determining whether energy savings are significant. Primary energy and FFC effects include the energy consumed in electricity production (depending on load shape), in distribution and transmission, and in extracting, processing, and transporting primary fuels (i.e., coal,

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[7] Procedures, Interpretations, and Policies for Consideration in New or Revised Energy Conservation Standards and Test Procedures for Consumer Products and Commercial/Industrial Equipment, 86 FR 70892, 70901 (Dec. 13, 2021).

[8] *See* Executive Order 14008, "Tackling the Climate Crisis at Home and Abroad," 86 FR 7619 (Feb. 1, 2021).

natural gas, petroleum fuels), and thus present a more complete picture of the impacts of energy conservation standards. Accordingly, DOE evaluates the significance of energy savings on a case-by-case basis.

To determine whether a proposed new or amended energy conservation standard is economically justified, EPCA requires that DOE determine whether the benefits of the standard exceed its burdens by considering, to the greatest extent practicable, the following seven factors:

(1) The economic impact of the standard on the manufacturers and consumers of the affected products subject to the standard;

(2) The savings in operating costs throughout the estimated average life of the covered product in the type (or class) compared to any increases in the price, initial charges, or maintenance expenses for the covered products that are likely to result from the standard;

(3) The total projected amount of energy (or as applicable, water) savings likely to result directly from the standard;

(4) Any lessening of the utility or the performance of the products likely to result directly from the standard;

(5) The impact of any lessening of competition, as determined in writing by the Attorney General, that is likely to result from the standard;

(6) The need for national energy and water conservation; and

(7) Other factors the Secretary considers relevant.

(42 U.S.C. 6295(o)(2)(B)(i)(I)–(VII))

DOE fulfills these and other applicable requirements by conducting a series of analyses throughout the rulemaking process. Table I.1 shows the individual analyses that are performed to satisfy each of the requirements within EPCA.

Table I.1 EPCA Requirements and Corresponding DOE Analysis

EPCA Requirement	Corresponding DOE Analysis
Significant Energy Savings	• Shipments Analysis • National Impact Analysis • Energy Use Analysis
Technological Feasibility	• Market and Technology Assessment • Screening Analysis • Engineering Analysis
Economic Justification:	
1. Economic Impact on Manufacturers and Consumers	• Manufacturer Impact Analysis • Life-Cycle Cost and Payback Period Analysis • Life-Cycle Cost Subgroup Analysis • Shipments Analysis
2. Lifetime Operating Cost Savings Compared to Increased Cost for the Product	• Markups for Product Price Analysis • Energy and Water Use Analysis • Life-Cycle Cost and Payback Period Analysis
3. Total Projected Energy Savings	• Shipments Analysis • National Impact Analysis
4. Impact on Utility or Performance	• Screening Analysis • Engineering Analysis
5. Impact of Any Lessening of Competition	• Manufacturer Impact Analysis
6. Need for National Energy and Water Conservation	• Shipments Analysis • National Impact Analysis
7. Other Factors the Secretary Considers Relevant	• Employment Impact Analysis • Utility Impact Analysis • Emissions Analysis • Monetization of Emission Reductions Benefits[9] • Regulatory Impact Analysis

As detailed throughout this RFI, DOE is publishing this document seeking input and data from interested parties to aid in the development of the technical analyses on which DOE would ultimately rely as it considers adopting energy conservation standards for consumer hearth heaters.

[9] On March 16, 2022, the Fifth Circuit Court of Appeals (No. 22-30087) granted the Federal government's emergency motion for stay pending appeal of the February 11, 2022, preliminary injunction issued in *Louisiana v. Biden*, No. 21-cv-1074-JDC-KK (W.D. La.). As a result of the Fifth Circuit's order, the preliminary injunction is no longer in effect, pending resolution of the federal government's appeal of that injunction or a further court order. Among other things, the preliminary injunction enjoined the defendants in that case from "adopting, employing, treating as binding, or relying upon" the interim estimates of the social cost of greenhouse gases—which were issued by the Interagency Working Group on the Social Cost of Greenhouse Gases on February 26, 2021—to monetize the benefits of reducing greenhouse gas emissions. In the absence of further intervening court orders, DOE will revert to its approach prior to the injunction and present monetized benefits where appropriate and permissible under law.

C. Deviation from Appendix A

In accordance with section 3(a) of 10 CFR part 430, subpart C, appendix A ("appendix A"), "Procedures, Interpretations, and Policies for Consideration of New or Revised Energy Conservation Standards and Test Procedures for Consumer Products and Certain Commercial/Industrial Equipment," DOE notes that it is deviating from the provision in appendix A \requiring a 75-day comment period for all pre-NOPR standards documents. 10 CFR part 430, subpart C, appendix A, section 6(d)(2). DOE finds it appropriate to deviate from this provision and to instead provide a 30-day comment period. DOE believes that 30 days is a sufficient time to respond to this initial rulemaking document, particularly since the market and available technologies for consumer hearth heaters have not changed substantially since the February 2015 NOPR, so, therefore, a 30-day comment period should be adequate to allow stakeholders to provide any relevant updates.

II. Request for Information and Comments

In the following sections, DOE has identified a variety of issues on which it seeks input to aid in the development of the technical and economic analyses regarding whether establishing energy conservation standards for consumer hearth heaters (a category of DHE products) may be warranted.

A. Products Covered by This Process

This RFI addresses consumer hearth heaters. Although DOE does not currently have a definition for "hearth heater," for the purpose of this RFI, DOE is generally considering these to be a category of DHE that is comprised of products that simulate a solid-fuel fireplace and/or present an aesthetic flame pattern and that are designed to provide heat to the indoor space in which they are used. These can be vented (*i.e.*, a subset of vented home heating equipment) or unvented (*i.e.*, a subset of unvented home heating equipment). Further, hearth heaters can be gas-fired, oil-fired, or electric. DOE

expects that oil-fired hearth heaters make up a small minority of shipments. Additionally, the energy savings potential from electric hearth heaters is expected to be *de minimis* because the efficiency of the electric resistance heaters used in such products approaches 100 percent and all the heat produced by electric resistance heaters will be directed into conditioned space. (Similarly, practically all the heat produced by unvented gas-fired or oil-fired hearth heaters is expected to enter the conditioned space. In contrast, vented gas-fired or oil-fired hearth heaters vent combustion products outdoors and lose heat in the vented combustion gases. As discussed in sections II.B and II.E of this document, DOE tentatively concludes that the differences between vented and unvented hearth heaters may make it appropriate to apply different test procedures and conduct separate engineering analyses for these different types of products.) For this RFI, DOE is not considering as hearth heaters products that are decorative hearth products or outdoor heaters, as proposed to be defined in the February 2022 NOPD. 87 FR 6786, 6790 (Feb. 7, 2022). Further discussion of the range of products DOE considers to be consumer hearth heaters, as well as potential class distinctions, is presented in section II.C.1 of this document.

DOE requests comment on an appropriate definition for a consumer "hearth heater." DOE also requests feedback on whether sub-categories of hearth heaters are necessary (*e.g.*, "vented hearth heaters" and "unvented hearth heaters"), and, if so, what the definitions of those sub-categories should be.

DOE seeks comment on whether oil-fired hearth heaters are currently being manufactured, as well as the relative market shares of gas-fired, oil-fired, and electric hearth heaters. DOE requests comment on its expectation that the energy savings potential from possible energy conservation standards for electric hearth heaters would be *de minimis*.

DOE requests comment on whether additional product definitions are necessary to close any potential gaps in coverage between product types.

B. Test Procedures Applicable to Hearth Heaters

Although hearth heaters are not currently subject to energy conservation standards, the current DOE test procedures for other classes of DHE (*i.e.*, 10 CFR part 430, subpart B, appendix G, *Uniform Test Method for Measuring the Energy Consumption of Unvented Home Heating Equipment* ("appendix G") and 10 CFR part 430, subpart B, appendix O, *Uniform Test Method for Measuring the Energy Consumption of Vented Home Heating Equipment* ("appendix O")) provide a test method and calculations to determine energy use or energy efficiency. DOE notes that numerous vented hearth heaters currently on the market are advertised with an AFUE rating, which is the regulatory metric for other classes of DHE. However, DOE recognizes that certain clarifications may be appropriate to facilitate testing of hearth heaters. For example, appendix O specifies installation instructions for the types of DHE that currently have energy conservation standards – wall furnaces, floor furnaces, and room heaters – so additional clarification may be needed for hearth heaters. *See* section 2.1 of appendix O. Similarly, circulating air adjustments are specified for wall furnaces, room heaters, and floor furnaces, so similar clarifications may be required for hearth heaters. *See* section 2.5 of appendix O. In addition, hearth heaters sometimes use "on demand" pilot technology, which includes a continuously-burning pilot light that will automatically shut off if the main burner is not lit for a certain period of time (*e.g.*, 7 days). Such products could benefit from additional clarification on treatment of the pilot light during testing. In addition to considering the use of the existing DHE test methods at appendix G and appendix O, DOE may also consider alternative test procedures for hearth heaters that would be more appropriate.

DOE seeks comment regarding appropriate test procedures for unvented and vented hearth heaters, including the applicability of DOE's test procedures at appendix G and appendix O, or any other applicable industry test procedures (and any additional clarifications or requirements that may be necessary). DOE also seeks comment regarding alternative test procedure requirements for unvented and vented hearth heaters.

C. Market and Technology Assessment

The market and technology assessment that DOE routinely conducts when analyzing the impacts of a potential new or amended energy conservation standard provides information about the hearth heater industry that will be used in DOE's analysis throughout the rulemaking process. DOE uses qualitative and quantitative assessments to characterize the structure of the industry and market, based primarily upon publicly-available information. The subjects addressed in the market and technology assessment include: (1) a determination of the scope of the rulemaking and products classes; (2) manufacturers and industry structure; (3) industry market shares and trends; (4) existing regulatory and non-regulatory initiatives intended to improve energy efficiency or reduce energy consumption; (5) shipments information; and (6) technologies or design options that could improve the energy efficiency of hearth heaters. DOE also reviews product literature, industry publications, and company websites. Additionally, DOE will consider conducting interviews with manufacturers to improve its assessment of the market and available technologies for hearth heaters.

1. Product Classes

When evaluating and establishing energy conservation standards, DOE may divide covered products into product classes by the type of energy used, or by capacity or other performance-related features that justify a different standard. (42 U.S.C. 6295(q)(1)) In making a determination whether a performance-related feature justifies a

different standard, DOE must consider such factors as the utility of the feature to the consumer and other factors DOE deems appropriate. (*Id*.)

Although hearth heaters are a category of DHE products, for the reasons explained previously, there currently are no energy conservation standards for hearth heaters. Furthermore, as discussed in section II.A of this document, there is also no current definition for "hearth heater," nor are hearth heaters divided into separate product classes. However, there are a wide variety of products on the market that are hearth heaters. For example, these products can be vented (*i.e.*, vented hearth heaters) or unvented (*i.e.*, unvented hearth heaters). Hearth heaters can also exist in a variety of configurations, such as stoves or fireplace inserts.

In a NOPR published in the *Federal Register* on December 11, 2009 ("December 2009 NOPR"), DOE proposed product classes for gas hearth products that were subdivided by input heating capacity. 74 FR 65852, 65871-65872. Similarly, in the April 2010 Final Rule in which these product classes were adopted, gas hearths included only vented home heating equipment. 75 FR 20112, 20234-20235 (April 16, 2010). (However, as discussed in section I.A.2 of this document, the D.C. Circuit later (in 2013) ordered that the definition of "vented hearth heater" adopted by DOE be vacated, and remanded the matter to the Department for further rulemaking consistent with the court's decision.) In an analysis performed for the February 2015 NOPR, which focused on standby mode energy consumption, DOE found substantial similarity among hearth products of all types, in that the primary mechanism of energy consumption in standby mode is a constant-burning pilot. 80 FR 7082, 7091 (Feb. 9, 2015). Thus, DOE did not propose to divide hearth products into multiple product classes. Accordingly, DOE tentatively concluded that the establishment of product classes was not necessary for the energy conservation standards being analyzed at that time. *Id.*

Additionally, in the February 2015 NOPR (which covered both hearth heaters and decorative hearths), DOE tentatively concluded that there was no universally accepted definition or set of defining features for what constitutes different categories of hearth products. 80 FR 7082, 7091 (Feb. 9, 2015). In research conducted for the February 2015 NOPR, DOE found that the same product is sometimes certified to multiple ANSI standards. *Id*. DOE identified unvented gas log sets certified to the ANSI Z21.60[10] decorative gas-fire appliance standard in addition to the ANSI Z21.11.2[11] unvented heater standard. *Id*. DOE also identified vented products advertised with an AFUE or thermal efficiency rating, and certified to either or both the ANSI Z21.88[12] vented heater fireplace standard or the ANSI Z21.50[13] vented fireplace standard. *Id*.

DOE requests feedback on whether hearth heaters have performance-related features (*e.g.*, heat exchanger design, flame characteristics, or heat output) that provide unique consumer utility that impact energy use of the product. If so, DOE requests data detailing the corresponding impacts on energy use that would justify separate product classes (*i.e.*, explanation for why the presence of these performance-related features would increase energy consumption).

2. Technology Assessment

In analyzing the feasibility of potential new or amended energy conservation standards, DOE uses information about existing and past technology options and working prototype designs to help identify technologies that manufacturers could use to meet

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[10] The most up-to-date version of this standard is ANSI Z21.60-2017/CSA 2.26-2017; *Decorative Gas Appliances For Installation In Solid-Fuel Burning Fireplaces* (Available at: *https://webstore.ansi.org/Standards/CSA/ansiz21602017csa26*) (Last accessed June 6, 2022).

[11] The most up-to-date version of this standard is CSA/ANSI Z21.11.2-2019; *Gas-Fired Room Heaters, Volume III, Unvented Room Heaters* (Available at: *https://webstore.ansi.org/Standards/CSA/csaansiz21112019*) (Last accessed June 6, 2022).

[12] The most up-to-date version of this standard is CSA/ANSI Z21.88-19/CSA 2.33-2019; *Vented Gas Fireplace Heaters* (Available at: *https://webstore.ansi.org/Standards/CSA/CSAANSIZ218819332019*) (Last accessed June 6, 2022).

[13] The most up-to-date version of this standard is CSA/ANSI Z21.50-19/CSA 2.22-2019; *Vented Decorative Gas Appliances* (Available at: *https://webstore.ansi.org/Standards/CSA/CSAANSIZ215019222019*) (Last accessed June 6, 2022).

and/or exceed a given set of energy conservation standards under consideration. In consultation with interested parties, DOE intends to develop a list of technologies to consider in its analysis. That analysis will likely include a number of the technology options DOE previously considered for hearth heaters as part of the April 2010 Final Rule and/or the February 2015 NOPR, which covered products including consumer hearth heaters. A complete list of those prior options appears in Table II.1 of this document.

Table II.1 Potential Technology Options for Hearth Heaters

Optimized Air-to-Fuel Ratio
Burner Port Design
Improved Simulated Log Design
Improved Pan Burner Media/Bead Type
Reflective Walls and/or Other Components Inside Combustion Zone
Air Circulation Fan
Electronic Ignition
Condensing Heat Exchanger
Increased Heat Exchanger Surface Area
Multiple Flues
Multiple Turns in Flue
Direct Vent (Concentric)
Increased Heat Transfer Coefficient
Thermal Vent Damper
Electric Vent Damper
Induced Draft
2-Stage or Modulating Operation
Increased Insulation
Condensing Pulse Combustion
Sealed Combustion

DOE seeks information on the technologies listed in Table II.1 regarding their applicability to the current hearth heater market (including both vented and unvented hearth heaters) and how these technologies might potentially impact the efficiency of hearth heaters. DOE also seeks information on how these technologies may have changed since they were considered in the April 2010 Final Rule and/or February 2015

NOPR. Specifically, DOE seeks information on the range of efficiencies or performance characteristics that are currently available for each technology option.

DOE also seeks comment on any other technology options that it should consider for inclusion in its analysis and whether these technologies might impact product features or consumer utility of hearth heaters.

D. Screening Analysis

The purpose of the screening analysis is to further evaluate the technologies with the potential to improve equipment efficiency to determine which technologies should be eliminated from further consideration and which ones should proceed to the engineering analysis for further consideration in the energy conservation standards rulemaking.

DOE determines whether to eliminate certain technology options from further consideration based on the following five screening criteria:

(1) *Technological feasibility.* Technologies that are not incorporated in commercial products or in working prototypes will not be considered further.

(2) *Practicability to manufacture, install, and service.* If it is determined that mass production and reliable installation and servicing of a technology in commercial products could not be achieved on the scale necessary to serve the relevant market at the time of the projected compliance date of the standard, then that technology will not be considered further.

(3) *Impacts on productt utility or product availability.* If it is determined that a technology would have significant adverse impact on the utility of the product to significant subgroups of consumers, or would result in the unavailability of any covered product type with performance characteristics (including reliability), features, sizes, capacities, and volumes that are substantially the same as products generally available in the United States at the time, it will not be considered further.

(4) *Adverse impacts on health or safety.* If it is determined that a technology would have significant adverse impacts on health or safety, it will not be considered further.

(5) *Unique-Pathway Proprietary Technologies.* If a design option utilizes proprietary technology that represents a unique pathway to achieving a given efficiency level, that technology will not be considered further due to the potential for monopolistic concerns.

10 CFR part 430, subpart C, appendix A, sections 6(b)(3) and 7(b).

Technology options identified in the technology assessment are evaluated against these criteria using DOE analyses and inputs from interested parties (*e.g.*, manufacturers, trade organizations, and energy efficiency advocates). Technologies that pass through the screening analysis are referred to as "design options" in the engineering analysis. Technology options that fail to meet one or more of the five criteria are eliminated from further consideration.

DOE requests feedback on what impact, if any, the five screening criteria described in this section would have when applied to each of the technology options listed in Table II.1 pertaining to hearth heaters. Similarly, DOE seeks information regarding the effect these same criteria would have when applied to any other technology options not already identified in this document with respect to their potential use in hearth heaters.

E. Engineering Analysis

The purpose of the engineering analysis is to establish the relationship between the efficiency and cost of consumer hearth heaters. There are two elements to consider in the engineering analysis: (1) the selection of efficiency levels to analyze (*i.e.*, the "efficiency analysis") and (2) the determination of product cost at each efficiency level (*i.e.*, the "cost analysis"). In determining the performance of higher-efficiency products,

DOE considers technologies and design option combinations not eliminated by the screening analysis. For each product class, DOE estimates the baseline cost (*i.e.*, the manufacturer production cost (MPC)), as well as the incremental cost for the product at efficiency levels above the baseline. The output of the engineering analysis is a set of cost-efficiency "curves" that are used in downstream analyses (*i.e.*, the life-cycle cost ("LCC") and payback period ("PBP") analyses and the national impact analysis ("NIA")). The following sections provide further detail on DOE's engineering analysis and seek public input on specific issues pertinent to consumer hearth heaters, the subject of this rulemaking.

1. Efficiency Analysis

DOE typically uses one of two approaches to develop energy efficiency levels for the engineering analysis: (1) relying on observed efficiency levels in the market (*i.e.*, the efficiency-level approach), or (2) determining the incremental efficiency improvements associated with incorporating specific design options to a baseline model (*i.e.*, the design-option approach). Using the efficiency-level approach, the efficiency levels established for the analysis are determined based on the market distribution of existing products (in other words, based on the range of efficiencies and efficiency level "clusters" that already exist on the market). Using the design-option approach, the efficiency levels established for the analysis are determined through detailed engineering calculations and/or computer simulations of the efficiency improvements from implementing specific design options that have been identified in the technology assessment. DOE may also rely on a combination of these two approaches. For example, the efficiency-level approach (based on actual products on the market) may be extended using the design-option approach to interpolate to define "gap fill" levels (to bridge large gaps between other identified efficiency levels) and/or to extrapolate to the max-tech level (particularly in cases where

the max-tech level exceeds the maximum efficiency level currently available on the market).

For unvented hearth heaters, the combustion by-products enter the heated space rather than being vented outdoors, and as a result, there is no heat loss from venting of the combustion gases. In contrast, vented hearth heaters vent combustion products outdoors and lose heat in the vented combustion gases. As discussed in section II.B of this document, DOE expects that the test procedures at appendix G would apply to unvented hearth heaters and that the test procedures at appendix O would apply to vented hearth heaters. Consistent with the performance differences between vented and unvented products, these test methods provide different procedures and metrics for measuring energy consumption and/or efficiency. Therefore, DOE tentatively concludes that the disparate performance mechanisms of unvented hearth heaters and vented hearth heaters make it appropriate to conduct separate engineering analyses for these different types. The efficiency analysis for vented and unvented hearth heaters are discussed separately in more detail in sections II.E.1.a and II.E.1.b of this document, respectively.

DOE generally selects a baseline model as a reference point for each product class, and measures changes resulting from potential new or amended energy conservation standards against the baseline. The baseline model in each product class represents the characteristics of products typical of that class (*e.g.*, capacity, physical size). Generally, a baseline model is one that just meets current energy conservation standards, or, if no standards are in place (as is the case for hearth heaters), the baseline is typically the most common or least-efficient unit on the market. Because there are currently no standards for hearth heaters and these products are not required to certify ratings to DOE, DOE intends to survey the market and consider the baseline to be the least-efficient product designs currently available.

a. Vented Hearth Heaters

The current test procedure for vented home heating equipment, appendix O, establishes the method for calculating AFUE and annual energy consumption. In the April 2010 Final Rule, DOE determined that 64 percent AFUE was an appropriate baseline efficiency for gas vented hearth heaters (which were described as including gas-fired products such as fireplaces, fireplace inserts, stoves, and log sets that typically include aesthetic features and that provide space heating) and was associated with products using standing pilot ignition technology. 75 FR 20112, 20128, 20146 (April 16, 2010). However, through a preliminary review of the market, DOE has found that hearth heaters with ratings below 64 percent AFUE may be available today. As discussed in section I.A.2 of this document, the definition of "vented hearth heater" was vacated in 2014 (and by implication, the associated energy conservation standards).

DOE requests comment on the appropriate baseline efficiency level for vented gas hearth heaters, as well as the corresponding design features characteristic of the baseline efficiency. Similarly, DOE requests comment on the appropriate baseline for vented oil hearth heaters.

As part of DOE's analysis, the maximum available efficiency level is the highest-efficiency unit currently available on the market. DOE defines a "max-tech" efficiency level to represent the theoretical maximum possible efficiency if all available design options (that have passed the screening analysis) are incorporated in a model. In applying these design options, DOE would only include those options that are compatible with each other and that when combined would represent the theoretical maximum possible efficiency. In some cases, the max-tech efficiency level differs from the maximum available efficiency level, because the max-tech design options are not economically feasible to implement. In the April 2010 Final Rule, the max-tech level for gas vented hearth heaters was determined to be 93 percent AFUE. 75 FR 20112, 20146

(April 16, 2010). This efficiency level was found to be achieved using condensing operation. In addition, DOE analyzed intermediate efficiency levels of 67 percent and 72 percent AFUE, which corresponded to design options of an electronic ignition system and a fan-assisted air circulation system, respectively. *Id*. Vented oil-fired hearth heaters were not considered in the April 2010 Final Rule.

DOE requests comment on higher efficiency levels for vented gas hearth heaters and their associated design features. Additionally, DOE requests comment on appropriate efficiency levels above baseline for vented oil hearth heaters and their associated design features.

DOE also seeks input on identifying the max-tech efficiency level(s) and associated design options for gas and oil vented hearth heaters. Additionally, for any max-tech efficiency level identified by stakeholders, DOE also seeks input on whether such a max-tech efficiency level would be appropriate for potential consideration as possible energy conservation standards for hearth heaters, and if not, why not.

b. Unvented Hearth Heaters

As explained in the December 2020 DHE NOPD, the test procedure for unvented heaters (set forth in appendix G) includes neither a method for measuring energy efficiency nor a descriptor for representing the efficiency of unvented heaters. Instead, appendix G provides a method to measure and calculate the rated output for all unvented heaters and the annual energy consumption of primary electric unvented heaters. 85 FR 77017, 77020 (Dec. 1, 2020). Additionally, appendix G includes provisions to measure standby mode and off mode energy rates of unvented heaters. *See* 10 CFR part 430, subpart B, appendix G, sections 2.3 and 2.4. As discussed, there are currently no energy conservation standards for unvented DHE. DOE did not propose standards for unvented DHE in the April 2010 Final Rule because DOE concluded at the time that a standard could produce little energy savings (largely due to the fact that any heat losses are

dissipated directly into the conditioned space) and because of limitations in the applicable DOE test procedure.[14] 75 FR 20112, 20130 (April 16, 2010).

Additionally, DOE explained in the December 2020 DHE NOPD that unvented heaters are nearly 100-percent efficient during the heating season, in that all energy consumed is converted to heat that ends up within the living space as useful heat, and as a result, there is negligible opportunity for energy savings. 85 FR 77017, 77027 (Dec. 1, 2020). DOE considers the heating season to include two operating conditions for unvented home heating equipment: (1) active (heating) mode and (2) standby mode, which may include a standing pilot light. In contrast, during the non-heating season, heat generated by an unvented heater, including an unvented hearth heater, either from active mode or from a standing pilot light would not be useful heat and would be wasted. DOE considers energy consumption during the non-heating season to be off mode energy. For example, a standing pilot light left burning during non-heating months would contribute to off mode energy consumption.

In 2017, the Lawrence Berkeley National Laboratory conducted a survey of 2,100 homes with hearth products ("2017 Hearth Survey").[15] The survey provided hearth product characteristics, usage data, and repair and maintenance costs. The hearth product characteristics include the hearth product type, fuel type, ignition system type, features, venting, and installation details. The usage information includes seasonal usage of the main burner and standing pilot (if present), daily usage, and the primary utility (whether

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[14] DOE noted in the December 2009 NOPR that the test procedure for unvented equipment includes neither a method for measuring energy efficiency nor a descriptor for representing the efficiency of unvented home heating equipment. 74 FR 65852, 65866 (Dec. 11, 2009).

[15] David Siap, Henry Willem, Sarah K. Price, Hung-Chia Yang, and Alex Lekov. Survey of Hearth Products in U.S. Homes (2017) LBNL-2001030 (Available at: *https://eta-publications.lbl.gov/sites/default/files/lbnl-2001030.pdf*) (Last accessed June 6, 2022).
For the purposes of this study, a hearth product is a gas-fired or electrical appliance that displays a fire or flame pattern and may be vented or unvented. Heart product types are fireplaces or fireplace inserts, gas log sets that are typically inserted into an existing empty hearth, freestanding stoves, or outdoor units. The primary purpose of these products may be decorative, space heating, or a combination of the two. Patio heaters, gas lamps, or products with a primary function of cooking or providing light are not included in the definition for the purposes of this study. (LBNL at p. 7)

decorative or for heating). In the 2017 Hearth Survey, 35 percent of respondents reported that the pilot light is always on in their unvented hearth products (*i.e.*, including during the non-heating season). (Although the 2017 Hearth Survey included both decorative hearths and hearth heaters, all unvented hearth products are assumed to be hearth heaters because there is no mechanism to exhaust the heat outside of the living space.) As previously noted, the energy consumed by a standing pilot light during the non-heating season would be wasted. Further, the heat produced by a standing pilot may contribute to the cooling season cooling load.

If DOE finds that standards for off mode energy consumption of unvented hearth heaters could lead to significant conservation of energy, DOE may consider setting standards for the off mode energy consumption of these products. As discussed in section I.A.1 of this document, new standards must also be technologically feasible and economically justified. (42 U.S.C. 6295(o)(2)(A)) There are several metrics with which DOE could consider standards for unvented hearth heaters, including the energy input rate to the pilot light (Q_p) and the electrical standby power ($P_{W,SB}$). Appendix G specifies provisions for determining Q_p and the $P_{W,SB}$. See 10 CFR part 430, subpart B, appendix G, sections 2.3 and 2.4, respectively.

Section 2.3 of appendix G provides instructions for measuring Q_p, for unvented heaters equipped with a pilot light. However, section 2.3.1 of appendix G states that the measurement of Q_p is not required for unvented heaters where the pilot light is designed to be turned off by the user when the heater is not in use (*i.e.,* for units where turning the control to the OFF position will shut off the gas supply to the burner(s) and the pilot light). This provision applies only if an instruction to turn off the unit is provided on the heater near the gas control value (*e.g.,* by label) by the manufacturer. 10 CFR part 430, subpart B, appendix G, sections 2.3 and 2.3.1.

The responses to the 2017 Hearth Survey indicate that the pilot light on many unvented hearth heaters may not be turned off when the heater is not in use.

DOE requests additional data and information about the typical usage of unvented hearth heaters. Specifically, DOE requests comment on how commonly the pilot lights of gas unvented hearth heaters are left on during non-heating season. Further, DOE requests comment on how commonly manufacturer instructions to turn off gas unvented hearth heaters are provided on the heater near the gas control valve.

DOE requests comment on appropriate baseline off mode energy consumption levels, and the associated design options, for unvented hearth heaters in terms of Q_p, $P_{W,SB}$, and/or other metrics.

As previously noted, DOE defines a "max-tech" efficiency level to represent the theoretical maximum possible efficiency for a given product. In applying these design options, DOE would only include those that are compatible with each other that when combined, would represent the theoretical maximum possible efficiency. In many cases, the max-tech efficiency level is not commercially available because it is not economically feasible.

DOE seeks input on identifying efficiency levels above baseline, including the max-tech efficiency level(s), in terms of Q_p, $P_{W,SB}$, and/or other metrics, for unvented hearth heaters. DOE also requests comment on the design options associated with every efficiency level. Additionally, for any higher efficiency level identified by stakeholders, DOE also seeks input on whether such an efficiency level would be appropriate for potential consideration as possible energy conservation standards for unvented hearth heaters, and if not, why not.

2. Cost Analysis

The cost analysis portion of the engineering analysis is conducted using one or a combination of cost approaches. The selection of cost approach depends on a suite of factors, including availability and reliability of public information, characteristics of the regulated product, and the availability and timeliness of purchasing the product on the market. The cost approaches are summarized as follows:

- *Physical teardowns:* Under this approach, DOE physically dismantles a commercially-available product, component-by-component, to develop a detailed bill of materials ("BOM") for the product.
- *Catalog teardowns:* In lieu of physically deconstructing a product, DOE identifies each component using parts diagrams (available from manufacturer websites or appliance repair websites, for example) to develop the BOM for the product.
- *Price surveys:* If neither a physical nor catalog teardown is feasible (*e.g.*, for tightly integrated products such as fluorescent lamps, which are infeasible to disassemble and for which parts diagrams are unavailable) or cost-prohibitive and otherwise impractical (*e.g.*, large commercial boilers), DOE conducts price surveys using publicly-available pricing data published on major online retailer websites and/or by soliciting prices from distributors and other commercial channels.

The BOM provides the basis for the manufacturer production cost ("MPC") estimates. DOE then applies a cost multiplier (the manufacturer markup) to convert the MPC to manufacturer selling price ("MSP"). The manufacturer markup accounts for non-production costs (*i.e.,* selling, general, and administrative expenses, research and development, and interest), along with profit. The resulting MSP is the price at which the manufacturer distributes a unit into commerce.

In both the DHE cost analysis for the April 2010 Final Rule and the hearth products cost analysis for the February 2015 NOPR, DOE performed physical teardowns to generate a BOM and then converted the materials and components to dollar values based on the price of materials, average labor rates associated with manufacturing and assembling, and the cost of overhead and depreciation. 75 FR 20112, 20147–20148 (April 16, 2010); 80 FR 7082, 7098 (Feb. 9, 2015).

DOE requests feedback on whether an increase in energy efficiency for vented hearth heaters or a reduction in energy consumption for unvented hearth heaters would lead to other design changes that would not occur for these products otherwise. DOE is also interested in information regarding any potential impact of design options on a manufacturer's ability to incorporate additional functions or attributes in response to consumer demand, for both vented and unvented hearth heaters.

DOE also seeks input on increases in MPC associated with incorporating any design options identified. Specifically, DOE is interested in whether and how the costs estimated for design options in the April 2010 Final Rule and/or February 2015 NOPR have changed since the time of those analyses. DOE also requests information on the investments necessary to incorporate specific design options, including, but not limited to, costs related to new or modified tooling (if any), materials, engineering and development efforts to implement each design option, and manufacturing/production impacts.

DOE requests comment on whether certain design options may not be applicable to (or incompatible with) specific product types.

F. Markup Analysis

DOE derives consumer prices based on MSP, retailer markups, distributor markups, contractor markups (where appropriate), and sales taxes. In deriving these markups, DOE determines the major distribution channels for product sales, the markup

associated with each party in each distribution channel, and the existence and magnitude of differences between markups for baseline products ("baseline markups") and higher-efficiency products ("incremental markups"). The identified distribution channels (*i.e.*, how the products are distributed from the manufacturer to the consumer) and estimated relative sales volumes through each channel are used in generating end-user price inputs for the LCC analysis and NIA. The markups are multipliers that are applied at each stage in the distribution channel for consumer hearth heaters.

In the February 2015 NOPR, DOE utilized several sources including: (1) the Heating, Air-Conditioning & Refrigeration Distributors International ("HARDI") 2013 Profit Report[16] to develop wholesaler mark-ups; (2) the Air Conditioning Contractors of America's ("ACAA") 2005 financial analysis for the heating, ventilation, air-conditioning, and refrigeration ("HVACR") contracting industry[17] to develop mechanical contractor mark-ups, and (3) U.S. Census Bureau 2007 Economic Census data[18] for the residential and commercial building construction industry to develop general contractor mark-ups. 80 FR 7082, 7100 (Feb. 9, 2015). DOE characterized two distribution channels to describe how hearth products pass from the manufacturer to consumers: (1) replacement market and (2) new construction. The replacement market channel was characterized as follows:

Manufacturer ➞ Wholesaler ➞ Mechanical contractor ➞ Consumer

The new construction distribution channel was characterized as follows:

Manufacturer ➞ Wholesaler ➞ Mechanical contractor ➞ General contractor ➞ Consumer

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[16] Heating, Air Conditioning & Refrigeration Distributors International 2013 Profit Report (Available at: *www.hardinet.org*) (Last accessed March 31, 2022).
[17] Air Conditioning Contractors of America, Financial Analysis for the HVACR Contracting Industry: 2005 (Last accessed April 10, 2013).
[18] U.S. Census Bureau, 2007 Economic Census Data (Available at: *www.census.gov*) (Last accessed March 31, 2022).

Id.

It is DOE's understanding that these distribution channels remain in place at the current time in essentially the same form.

For wholesalers and contractors, DOE developed baseline and incremental mark-ups. The baseline mark-up relates the change in the MSP of baseline models to the change in the consumer purchase price. The incremental mark-up relates the change in the MSP of higher-efficiency models to the change in consumer purchase price. In addition to the mark-ups, DOE derived State and local taxes from data provided by the Sales Tax Clearinghouse.[19] DOE derived shipment-weighted-average tax values for each region considered in the analysis. *Id*. DOE plans to use the most updated versions of these data sources to develop markups for consumer hearth heaters.

DOE did not account for the retail outlets distribution channel in which the manufacturer sells the equipment to a retailer, who in turn sells it to a mechanical contractor, who in turn sells it to the consumer. DOE did not have sufficient data to estimate a separate markup for this distribution channel. Accordingly, DOE assumed that the retailer markup was similar to the wholesaler markup.

DOE is also aware that there may be two additional distribution channels for hearth products: (1) an online distribution channel where manufacturers sell the products to online retailers who in turn sell them directly to consumers, and (2) a rebranding distribution channel where wholesalers or retailers negotiate good pricing from the hearth product manufacturer based on high volumes and have the product customized to carry their name, and then send it through their normal distribution channel to the contractors. The former one mainly applies to the do-it-yourself ("DIY") installation, which is expected to account for a very small fraction of the total hearth heater shipments. For the

[19] Sales Tax Clearinghouse, Inc. State Sales Tax Rates Along with Combined Average City and County Rates, 2013. (Available at*thestc.com/STrates.stm*) (Last accessed March 31, 2022).

latter one, DOE assumes that it would have the same overall markups as the conventional distribution channels. Although manufacturers may have a lower margin in such cases, wholesalers and retailers would redistribute the profit throughout the distribution channel to set the final retail price so as to be comparable with products sold through conventional distribution channels. For the reasons mentioned previously, DOE did not consider any of these additional distribution channels in the February 2015 NOPR analysis.

DOE requests information on the distribution channels outlined previously, and whether they are still applicable to vented and unvented hearth heaters. DOE requests information on the existence of any distribution channels other than those listed previously for hearth heaters. Further, DOE seeks input on the percentage of products being distributed through the different distribution channels, as well as whether the share of products through each channel varies based on capacity or other features.

G. Energy Use Analysis

As part of the rulemaking process, DOE conducts an energy use analysis to identify how products are used by consumers, to determine the annual energy consumption of consumer hearth heaters, and to assess the energy savings potential of energy efficiency improvements. DOE typically bases the energy consumption of products on the annual energy consumption as determined by the applicable DOE test procedure. Along similar lines, the energy use analysis is meant to represent typical energy consumption in the field.

1. Consumer Samples and Market Breakdowns

To estimate the annual energy use of products in field operating conditions, DOE typically develops consumer samples that are representative of installation and operating characteristics of how such products are used in the field, as well as distributions of annual energy use by application and market segment. DOE may utilize the most current

version of the Residential Energy Consumption Survey ("RECS")[20] published by the U.S. Energy Information Administration ("EIA") (currently the 2015 RECS).

DOE requests data and information regarding market applications of consumer hearth heaters.

2. Operating Hours

One of the key inputs to the energy use analysis is the number of annual operating hours of the product. The usage information provided in the 2017 Hearth Survey includes seasonal usage of the main burner and standing pilot (if present), daily usage, and the primary utility (whether decorative or for heating). DOE may consider this survey for estimating the operating hours of hearth heaters.[21]

DOE requests any other available data or published reports on the annual operating hours for consumer hearth heaters.

H. Life-Cycle Cost and Payback Period Analysis

DOE conducts the LCC and PBP analysis to evaluate the economic effects of potential energy conservation standards for hearth heaters on individual consumers, which usually involves a reduction in operating cost and an increase in purchase cost. For any given efficiency level, DOE measures the PBP and the change in LCC relative to an estimated baseline level. The LCC is the total consumer expense of an appliance or product over the life of that product, consisting of total installed cost and operating costs (expenses for energy use, maintenance, and repair). Inputs to the calculation of total installed cost include the purchase cost of the product—which includes MSPs, distribution channel markups, and sales taxes—and installation costs. Inputs to the calculation of operating expenses include annual energy consumption, energy prices and

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[20] Energy Information Administration ("EIA"), 2015 Residential Energy Consumption Survey ("RECS") (Available at: *www.eia.gov/consumption/residential/*) (Last accessed June 6, 2022).

[21] David Siap, Henry Willem, Sarah K. Price, Hung-Chia Yang, and Alex Lekov, Survey of Hearth Products in U.S. Homes (2017) LBNL-2001030 (Available at: *https://eta-publications.lbl.gov/sites/default/files/lbnl-2001030.pdf*) (Last accessed June 6, 2022).

price projections, repair and maintenance costs, equipment lifetimes, discount rates, and the year that compliance with new and amended standards is required.

1. Installation Costs

Installation costs represent the labor and materials required to install a hearth heater. DOE plans to use RS Means Residential Cost Data[22] to estimate the installation costs for hearth heaters.

DOE requests comment on the use of RS Means as a source to develop installation costs for consumer hearth heaters.

DOE requests comment on whether the installation cost of consumer hearth heaters would be expected to change with efficiency level.

2. Energy Prices

In the analysis for the February 2015 NOPR, DOE used data from the EIA on average prices in various States and regions[23] [24] [25] to assign an energy price to each house in the sample based on its location. 80 FR 7082, 7102 (Feb. 9, 2015). Average electricity prices and natural gas prices from the EIA data were adjusted using seasonal marginal price factors to derive monthly marginal electricity and natural gas prices. *Id*. Future prices were estimated using the reference case projection of the *Annual Energy Outlook* ("*AEO*") *2014*.[26] *Id.* DOE plans to use a similar approach and with updated data from the EIA and *AEO 2022*.

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[22] RS Means Company Inc., *RS Means Residential Cost Data* (2021) (Available at: *www.rsmeans.com/*).
[23] U.S. Department of Energy—Energy Information Administration, Form EIA–826 (Now called Form EIA-861M) Database Monthly Electric Utility Sales and Revenue Data (2013) (Available at: *https://www.eia.gov/electricity/data/eia861m/*).
[24] U.S. Department of Energy – Energy Information Administration, Natural Gas Navigator (2013) (Available at: *https://www.eia.gov/naturalgas/*).
[25] U.S. Department of Energy—Energy Information Administration, 2012 State Energy Consumption, Price, and Expenditure Estimates (SEDS) (2013) (Available at: *www.eia.doe.gov/emeu/states/_seds.html*).
[26] *Annual Energy Outlook*—Energy Information Administration (2014) (Available at: *www.eia.gov/outlooks/archive/aeo14/)*.

DOE requests comment on its approach to develop electricity and natural gas prices for consumer hearth heaters.

3. Repair and Maintenance Costs

Repair costs are associated with repairing or replacing components in the hearth heater that have failed, whereas maintenance costs are routine annual costs associated with the continued proper operation of equipment. The 2017 Hearth Survey asked respondents about the average cost and frequency of hearth repairs and maintenance over the lifetime of the product. Repair categories included in the survey were ignition failure, controls failure, combustion damage, and other. Maintenance categories included in the survey were chimney cleaning, firebox cleaning, exterior cleaning, and other.[27] DOE intends to use this data, along with RS Means, to develop repair and maintenance costs for consumer hearth heaters.

DOE requests feedback and data on whether maintenance costs differ in comparison to the baseline maintenance costs for any of the specific technology options listed in Table II.1 for consumer hearth heaters.

DOE requests information and data on the frequency of repair and repair costs by product class for the technology options listed in Table II.1 for consumer hearth heaters. While DOE is interested in information regarding each of the listed technology options, the Department is also interested in whether consumers simply replace the products when they fail as opposed to repairing them.

4. Product Lifetime

Product lifetime is the age at which a product is retired from service. In the February 2015 NOPR, DOE developed a hearth product survival function, which provides a range of minimum to maximum lifetimes, as well as an average lifetime.

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[27] David Siap, Henry Willem, Sarah K. Price, Hung-Chia Yang, and Alex Lekov, Survey of Hearth Products in U.S. Homes (2017) LBNL-2001030, pp. 44-46 (Available at: *eta-publications.lbl.gov/sites/default/files/lbnl-2001030.pdf*).

Using this survival function, DOE estimated that consumer hearth heaters would have an average lifetime of 16 years. 80 FR 7082, 7103 (Feb. 9, 2015).

DOE requests comment on whether the average lifetime of 16 years for consumer hearth heaters that was used in the February 2015 NOPR is still a valid estimate.

5. No-New-Standards Case Efficiency Distribution

To estimate the share of consumers affected by a potential energy conservation standard, DOE's LCC and PBP analysis considers the projected distribution (*i.e.,* market shares) of product efficiencies that consumers would be expected to purchase in the first compliance year in the base case (*i.e.,* the case without new or amended energy conservation standards). DOE plans to review available product literature and market data to develop an efficiency distribution for the base case.

DOE requests data on the market share of vented and unvented hearth heaters with the technology options listed in Table II.1 and/or by efficiency level.

I. Shipments Analysis

DOE develops shipments forecasts of hearth heaters as an input to calculate the national impacts of potential energy conservation standards on energy consumption, net present value ("NPV") of consumer benefits and costs, and future manufacturer cash flows. SOE shipments projections are based on available historical data broken down by product group. Current sales estimates allow for a more accurate model that captures recent trends in the market.

In the February 2015 NOPR (which considered hearth heaters as well as decorative hearths), DOE relied on historical shipments data from the Hearth, Patio, and Barbeque Association as well as manufacturer interviews for hearth products, to develop the shipment estimates shown in Table II.2 of this document.[28] These shipments values

[28] *See* chapter 9 of the technical support document that accompanied the February 2015 NOPR. (Available at: *www.regulations.gov/document/EERE-2014-BT-STD-0036-0002*) (Last accessed June 6, 2022).

included vented and unvented fireplaces, vented and unvented gas logs, and outdoor heaters.

Table II.2 Annual Shipments for Hearth Products

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Shipments (millions)	1.69	1.30	1.13	0.785	0.462	0.487	0.423	0.436	0.586

DOE requests updated annual sales data (*i.e.,* number of shipments) for vented and unvented consumer hearth heaters. If available, DOE requests the annual shipments information for the years 2014–2021.

J. National Impact Analysis

The purpose of the NIA is to estimate the aggregate economic impacts of potential energy conservation standards at the national level. The NIA assesses the potential national energy savings ("NES") and the national NPV of total consumer costs and savings that would be expected to result from new or amended standards at specific efficiency levels over 30 years of shipments. An important component of the NIA is the trend in energy efficiency in the no-new-standards case over the 30-year analysis period. In the analysis for the February 2015 NOPR, DOE assumed a constant efficiency trend over the 30-year period. 80 FR 7082, 7104 (Feb. 9, 2015).

DOE requests data on the expected future growth trends of vented and unvented hearth heaters with the technology options listed in Table II.1 of this document.

K. Manufacturer Impact Analysis

The purpose of the manufacturer impact analysis ("MIA") is to identify and quantify the estimated financial impacts of any new or amended energy conservation standards on manufacturers of consumer hearth heaters, and to evaluate the potential impacts of such standards on direct employment and manufacturing capacity. The MIA includes both quantitative and qualitative aspects. The quantitative part of the MIA primarily relies on the Government Regulatory Impact Model ("GRIM"), an industry cash-flow model adapted for each product in this analysis, with the key output being industry net present value ("INPV"). The qualitative part of the MIA addresses the potential impacts of energy conservation standards on manufacturing capacity and industry competition, as well as factors such as product characteristics, impacts on particular subgroups of firms, and important market and product trends.

As part of the MIA, DOE intends to analyze impacts of potential energy conservation standards on subgroups of manufacturers of covered products, including domestic small business manufacturers. DOE uses the Small Business Administration's ("SBA") small business size standards to determine whether manufacturers qualify as small businesses, which are listed by the applicable North American Industry Classification System ("NAICS") code.[29] Manufacturing of consumer hearth heaters is classified under NAICS 333414, "Heating Equipment (except Warm Air Furnaces) Manufacturing," and the SBA sets a threshold of 500 employees or less for a domestic entity to be considered a small business in this category. This employee threshold includes all employees in a business' parent company and any other subsidiaries.

One aspect of assessing manufacturer burden involves examining the cumulative impact of multiple DOE standards and the product-specific regulatory actions of other

[29] Table of Size Standards – U.S. Small Business Administration (Available at: *www.sba.gov/document/support--table-size-standards*) (Last accessed March 9, 2022).

Federal agencies that affect the manufacturers of a covered product or equipment. While any one regulation may not impose a significant burden on manufacturers, the combined effects of several existing or impending regulations may have serious consequences for some manufacturers, groups of manufacturers, or an entire industry. Assessing the impact of a single regulation may overlook this cumulative regulatory burden. In addition to energy conservation standards, other regulations can significantly affect manufacturers' financial operations. Multiple regulations affecting the same manufacturer can strain profits and lead companies to abandon product lines or markets with lower expected future returns than competing products. For these reasons, DOE conducts an analysis of cumulative regulatory burden as part of its rulemakings pertaining to appliance efficiency.

To the extent feasible, DOE seeks the names and contact information of any domestic or foreign-based manufacturers that distribute hearth heaters in the United States.

DOE identified small businesses as a subgroup of manufacturers that could be disproportionally impacted by potential energy conservation standards for consumer hearth heaters. DOE requests the names and contact information of small business manufacturers of hearth heaters, as defined by the SBA's size threshold, which manufacture products in the United States. In addition, DOE requests comment on any other manufacturer subgroups that could be disproportionally impacted by potential energy conservation standards for consumer hearth heaters. DOE requests feedback on any potential approaches that could be considered to address impacts on such manufacturers, including small businesses.

DOE requests information regarding the cumulative regulatory burden impacts on manufacturers of hearth heaters associated with: (1) other DOE energy conservation standards applying to different products or equipment that these manufacturers may also

make and (2) product-specific regulatory actions of other Federal agencies. DOE also requests comment on its methodology for computing cumulative regulatory burden and whether there are any flexibilities it can consider that would reduce this burden while remaining consistent with the requirements of EPCA.

III. Submission of Comments

DOE invites all interested parties to submit in writing by the date specified in the **DATES** section of this document, comments and information on matters addressed in this document and on other matters relevant to DOE's consideration of energy conservations standards for hearth heaters. After the close of the comment period, DOE will review the public comments received and may begin collecting data and conducting the analyses discussed in this document.

Submitting comments via www.regulations.gov. The *www.regulations.gov* webpage requires you to provide your name and contact information. Your contact information will be viewable to DOE Building Technologies Office staff only. Your contact information will not be publicly viewable except for your first and last names, organization name (if any), and submitter representative name (if any). If your comment is not processed properly because of technical difficulties, DOE will use this information to contact you. If DOE cannot read your comment due to technical difficulties and cannot contact you for clarification, DOE may not be able to consider your comment.

However, your contact information will be publicly viewable if you include it in the comment or in any documents attached to your comment. Any information that you do not want to be publicly viewable should not be included in your comment, nor in any document attached to your comment. If this instruction is followed, persons viewing comments will see only first and last names, organization names, correspondence containing comments, and any documents submitted with the comments.

Do not submit to *www.regulations.gov* information for which disclosure is restricted by statute, such as trade secrets and commercial or financial information (hereinafter referred to as Confidential Business Information ("CBI")). Comments submitted through *www.regulations.gov* cannot be claimed as CBI. Comments received through the website will waive any CBI claims for the information submitted. For information on submitting CBI, see the Confidential Business Information section.

DOE processes submissions made through *www.regulations.gov* before posting. Normally, comments will be posted within a few days of being submitted. However, if large volumes of comments are being processed simultaneously, your comment may not be viewable for up to several weeks. Please keep the comment tracking number that *www.regulations.gov* provides after you have successfully uploaded your comment.

Submitting comments via email, hand delivery/courier, or postal mail. Comments and documents submitted via email, hand delivery/courier, or postal mail also will be posted to *www.regulations.gov*. If you do not want your personal contact information to be publicly viewable, do not include it in your comment or any accompanying documents. Instead, provide your contact information in a cover letter. Include your first and last names, email address, telephone number, and optional mailing address. The cover letter will not be publicly viewable as long as it does not include any comments.

Include contact information each time you submit comments, data, documents, and other information to DOE. If you submit via postal mail or hand delivery/courier, please provide all items on a CD, if feasible, in which case it is not necessary to submit printed copies. No telefacsimiles (faxes) will be accepted.

Comments, data, and other information submitted to DOE electronically should be provided in PDF (preferred), Microsoft Word or Excel, WordPerfect, or text (ASCII) file format. Provide documents that are not secured, written in English, and free of any

defects or viruses. Documents should not contain special characters or any form of encryption, and, if possible, they should carry the electronic signature of the author.

Campaign form letters. Please submit campaign form letters by the originating organization in batches of between 50 to 500 form letters per PDF or as one form letter with a list of supporters' names compiled into one or more PDFs. This reduces comment processing and posting time.

Confidential Business Information. Pursuant to 10 CFR 1004.11, any person submitting information that he or she believes to be confidential and exempt by law from public disclosure should submit via email two well-marked copies: one copy of the document marked "confidential" including all the information believed to be confidential, and one copy of the document marked "non-confidential" with the information believed to be confidential deleted. DOE will make its own determination as to the confidential status of the information and treat it according to its determination.

It is DOE's policy that all comments may be included in the public docket, without change and as received, including any personal information provided in the comments (except information deemed to be exempt from public disclosure).

DOE considers public participation to be a very important part of the process for developing energy conservation standards. DOE actively encourages the participation and interaction of the public during the comment period in each stage of this process. Interactions with and between members of the public provide a balanced discussion of the issues and assist DOE in this process. Anyone who wishes to be added to the DOE mailing list to receive future notices and information about this process should contact Appliance and Equipment Standards Program staff at (202) 287-1445 or via e-mail at *ApplianceStandardsQuestions@ee.doe.gov*.

Signing Authority

This document of the Department of Energy was signed on June 9, 2022, by Kelly J. Speakes-Backman, Principal Deputy Assistant Secretary for Energy Efficiency and Renewable Energy, pursuant to delegated authority from the Secretary of Energy. That document with the original signature and date is maintained by DOE. For administrative purposes only, and in compliance with requirements of the Office of the Federal Register, the undersigned DOE Federal Register Liaison Officer has been authorized to sign and submit the document in electronic format for publication, as an official document of the Department of Energy. This administrative process in no way alters the legal effect of this document upon publication in the *Federal Register*.

Signed in Washington, DC, on June 9, 2022.

Treena V. Garrett,

Federal Register Liaison Officer,

U.S. Department of Energy.

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